## This Page Is Inserted by IFW Operations and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

## IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, please do not report the images to the Image Problem Mailbox.

## 1 SEQUENCE LISTING <110> C. Frank Bennett Susan M. Freier <120> ANTISENSE MODULATION OF HKR1 EXPRESSION <130> RTS-0248 <160> 89 . <210> 1 <211> 20 <212> DNA <213> Artificial Sequence <220> <223> Antisense Oligonucleotide <400> 1 tccgtcatcg ctcctcaggg 20 <210> 2 <211> 20 <212> DNA <213> Artificial Sequence <220> <223> Antisense Oligonucleotide <400> 2 atgcattctg ccccaagga 20 <210> 3 <211> 2772 <212> DNA <213> Homo sapiens <220> <221> CDS <222> (3)...(2096)

Property of

<400> 3

Ser Phe Pro His Leu Cys Ser Leu Leu Pro Asp Phe Arg Leu Gln Asp
20 25 30

ccg cgg cgt gca ccc gcg ttc cat ctg tct tct gag act ttg ccc ttc 143

Pro Arg Arg Ala Pro Ala Phe His Leu Ser Ser Glu Thr Leu Pro Phe
35 40 45

47

95

ca ggc gcg tta agc tgg ttg gga ccc ggg aag gcc tcc ctc tta agg

tet tte cea cae ete tge tee ttg tta eet gae ttt egg ett eag gat

Gly Ala Leu Ser Trp Leu Gly Pro Gly Lys Ala Ser Leu Leu Arg

						-			2							
			s Sei		_		-	r Arg	_	-			Gl	-	c ctg u Leu	
		a Lys					e Val					Val			g tac l Tyr	239
	Thr					Arg					Ala				c ctg Leu 95	287
				_	Leu					His	_	_		_	g gaa 1 Glu )	335
				Lys					Āla	_	ctg Leu		_	Gly	_	383
			Arg					Cys			gac Asp					431
_	_		_				_			_	cct Pro 155	_	•			479
_		_			_					_	agt Ser					527
-			_			_					cac His	_	-			575
		_	_	_			_	_	_		ttc Phe	_		_		623
											aga Arg					671
											tcc Ser 235					719
-		_		-	_		_	_	_		aca Thr			_		767
			Pro								gaa Glu					815
ttg Leu		Gly		_	-					_	atc Ile	Lys		_		863

			5 Gl					Ser					Let		g aag n Lys	911
		ı Thi					туг					Trp			agc Ser	959
	Gly					. Leu					Arg				335 335	1007
	_				Cys	agg Arg	_	_		Arg			_		_	1055
				Thr		cag Gln								Pro		1103
	_	_	Asp	_		cga Arg	_				_	_				1151
		Gln				tca Ser 390			_				_	_	_	1199
-		_	_		_	ctg Leu	_							_		1247
					_	cct Pro		_	_		_	_		_		1295
	_	_				ctg Leu	_	_		_						1343
					_	agg Arg		_					_	_		1391
						tta Leu 470										1439
						cgt Arg			Ser							1487
						tca Ser		Val								1535
_		_			_	ctg Leu								_		1583

515 · 520 525

tca cac acg ggg gag aag cca ttt gta tgt acg gag tgt ggg cga ggc 16 Ser His Thr Gly Glu Lys Pro Phe Val Cys Thr Glu Cys Gly Arg Gly 530 535 540	31
ttt acc cgg aaa tca acc ctg atc acg cac cag agg aca cac tca ggg 16 Phe Thr Arg Lys Ser Thr Leu Ile Thr His Gln Arg Thr His Ser Gly 545 550 555	79
gag aag cca ttt gta tgt gct gag tgt gga cga ggc ttt aat gat aag 173 Glu Lys Pro Phe Val Cys Ala Glu Cys Gly Arg Gly Phe Asn Asp Lys 560 565 570 575	27
tcc acc ctc att tca cac cag agg aca cat tca ggg gaa aag cct ttt 17° Ser Thr Leu Ile Ser His Gln Arg Thr His Ser Gly Glu Lys Pro Phe 580 585 590	75
atg tgc agg gag tgt ggc aga agg ttt cgg cag aag cct aac ctg ttt 182 Met Cys Arg Glu Cys Gly Arg Arg Phe Arg Gln Lys Pro Asn Leu Phe 595 600 605	23
agg cac aag agg gca cac tca ggt gcc ttt gtg tgc agg gag tgt ggg 187 Arg His Lys Arg Ala His Ser Gly Ala Phe Val Cys Arg Glu Cys Gly 610 620	71
caa ggc ttt tgt gct aag tta act ctc att aaa cac cag aga gca cac 191 Gln Gly Phe Cys Ala Lys Leu Thr Leu Ile Lys His Gln Arg Ala His 625 630 635	19
gca ggg ggg aag cct cat gtg tgc agg gag tgt ggg caa ggc ttt agc 196 Ala Gly Gly Lys Pro His Val Cys Arg Glu Cys Gly Gln Gly Phe Ser 640 645 650 655	;7 <sup>°</sup>
cgg cag tca cac ctc att aga cac cag agg aca cat tca gga gag aag 201 Arg Gln Ser His Leu Ile Arg His Gln Arg Thr His Ser Gly Glu Lys 660 665 670	.5
cct tat att tgc aga aag tgt gga cgg ggc ttt agt cgg aag tcc aac 206 Pro Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn 675 680 . 685	3
ctt atc aga cat cag agg aca cac tca gga tag aaactttatg tgtataggga 211 Leu Ile Arg His Gln Arg Thr His Ser Gly 690 695	6
atgtggtaca gcctttagcc aggagtcata cttcatcaga caccagagga cacacacagt 217	6
gctgtggctt tttcagccat tgctagatac caaagtggag acattctgtg tgtgattatg 223	6
catgagactg tactggtaag acttgtatet ccatecacet gaaggagaat tgetggetea 229	6
ttttcaggag ccctgccctt cctcactgtg gatggtgggt tgtggaaacc cggtcaggta 2356	6
atgatagtgg caggaggcag tcaaatgccc aggcagatag gggtgggtac ctggtgaaac 2416	6
ccaaccttaa agctgaagac agtcccggct aaatcctcat actgaattga gaacctgtct 2476	6
teccattigg tgtgetttee teegattgat eccaaceett cacetatttt aegtataeet 2538	5

gccctttcct aattggtttt tacactgctg tgcccacctt ttgagtggtg cctttgcata 2596 cttacaaatc agtcaacgtg tattccccta ttctgagccc ataaaagacc cagactcagc 2656 tgcagtgagg agagaaatca ccctgctgtg gaggttgggg accactccct gcatccctc 2716 tccactgaga gctgttcttt tgctcaataa aattcttttc tacccatcct caccct <210> 4 <211> 21 <212> DNA <213> Artificial Sequence <220> <223> PCR Primer <400> 4 . 21 tgaaggagaa ttgctggctc a <210> 5 <211> 19 <212> DNA <213> Artificial Sequence <220> <223> PCR Primer <400> 5 acctgaccgg gtttccaca 19 <210> 6 <211> 25 <212> DNA <213> Artificial Sequence <220> <223> PCR Probe <400> 6 25 ctgcccttcc tcactgtgga tggtg <210> 7

19

<210> 8

<400> 7

<220>

<211> 19 <212> DNA

<223> PCR Primer

gaaggtgaag gtcggagtc

<213> Artificial Sequence

<211> 20 <212> DNA <213> Artificial Sequence <220> <223> PCR Primer <400> 8 gaagatggtg atgggatttc 20 <210> 9 <211> 20 <212> DNA <213> Artificial Sequence <220> <223> PCR Probe <400> 9 caagetteec gtteteagee 20 <210> 10 <211> 11173 <212> DNA <213> Homo sapiens <220> <400> 10 aagettettg getetetaag tittattite tatteaetgt gagaagtaet tggetattat 60 ttcaatattt ttcctgtccc ttttactctt tcctctcatt ctaggactcc caatttacct gtatattgga ctgctggaaa tgtgtttctg aagattcata ttgtctcata agcttctgtt catttttctt cagtcttttt tctctttttt gaggggtggg tggatatatg taatttctat tottttattt toaaattoac taatettiet tettittetg titgetatta aacetgieta 300 gtgaattttt aaatttcagt tgttttttc tttccccctc ccctcctctc ccctctctc 360 cocteccete cocteccete eccteccete eccteccete eccteccete etettgttte 420 tgtgggtttt aggagtgctc tcaggcaaga aagccacaaa caaaattatt acccctttct 480 gttgcaattt tttgagcata aactetteec catettetgg etggttatgt atatttteea 540 gtgcctttga gtagttattt gttatatttt atccagtctt attattttct gctgcagggt 600 tettgtgace attteagtet getggeattt tegttagtgg getteeteat aettattttt gaattgattt ttggaaattg cttcaaaatt acagaatatt tgcaaaaata aaaatagtag 720 aataaatata tatggtgcag tgagttgtat gtggtttgtc cccaccacaa ctcatggtga 780 aatttaattg ccagtttaac ggtattgaaa ggtggtgggg cctttaagag gtgtttggtt

gtggcatctc tgccctctcg aatggcttat gcagactggg ttagttcttt tggactgggt tggttctcgt gagatcaagt tgttataaaa caaggcttcc tctgatgttt ggcctctttg catgcacttg ctttcccttc ctctttctgc tgtgatttga agcagcatga gaccatcacc 1020 aaatgggcta ccatccaacc tccagaattg tgagccaaat aaactttttt gtaaattacc 1080 cagtctcagg tattctgtta tagcaataca aaacagatta agacatatgg catatatgtt 1140 attatataaa tggcatcata aaatgaccta ctattttact tagtttgctt tatcatttat 1200 teatgtgete ttttgeatge ataccettee teetteette eeetttetea gtacatatgt 1260 atgtatgtgt atatgtatat gtatgttcat atgtgtttgt ttttgtttttg tctttgtttt 1320 tgtttttgtt ttttgagaca gagtctcgct ctgtcaccca ggctggagtg cagtggcacg 1380 atcteggete aetgeaacet eegeeteetg ggtteaageg atteteetge eteageetee 1440 caagtagctg ggattacagg tgcacgccac catgcctggc taatttttgt gtttttagta 1500 gagacagggt ttcaccatgt tagtcaggct ggtcttgaac acctgacctc atgatctgct 1560 caccteggte teceaaagtg etgggattac aggegtgage caccacece ggeetgtaag 1620 tgtttgtttc tgtgaatttt ctaagaatgt cgatattgtc tcatataacc acagtgtggt 1680 tatcageete agtaaaetta aetttgatae agteattttg eetgttatet aecattegta 1740 ttataatttt gtcaacatat agaataatat ggttttttac tttccagaac ataatctagt 1800 ccaaggttag ttagttcatt ttcatgtcat gtctataatt attattaagg gaagggaatt 1860 attatttcaa taatctttct ctgtctttta taacattgac atttcatttg tttatttaat 1920 tttagattca gagtgtacat gtgcaggttt gttacatggg tatattatgt aatgctgggg 1980 2040 tttggggctt ctattgaacc tatcacccaa atagtttaca tagtacctga taggtagttt ttcagccett acetecatee ttttteeeet gttttggagt eeccagtgte tattatttee 2100 atctttatgt ccgtgtgtac ccattgttta gctcctactt gtgagaacat aggttatttg 2160 attttctgtt tctgcattga ttcacttagg atgatggcct ctagctgcat ccatgttgct 2220 gcagaggaca tgatttcatt cttttttatg gctgcatagt atttcatggt gtgtgtgtac 2340 cacattttat ttatccagtc cactattgat gggcctatac gaagattcca tgactttgct gttgggaata gtgctgcgat aagcatacga gtgcaggtgt cttctggtag aacaatttat 2400 tttcccagtc ttgggattgt tggattgaat ggtagttcta tttttagttc cttgagaaat ttccatactg tttgccatac aggttgaact aatttacatg accaccaaca atatataagc 2520 attecetgtt etgtgeatee teactaacat etgttttttt gtttgtttgt ttgtttgttt 2580 aactttttaa taatagccat tetgaetggt gtgagatgge etatettett gtgggtttte

ttttcccatc cttcactggt accaagatet ctttgtggtt gtaatttgta tttctctgat gattagtgat tttgagcatt ttttatgttt gctccctgtt tgtgtacctt cttttgagaa 2760 gtatctgttt atgtcctttg ctcacttttt aatgaggtta tttgggtttt tgttgttgat 2820 ttgtttaagt tccttatgtt tctgcatatt agtcctttgt aagatgcatg gttcgcaaat 2880 getttetece attetgtagg ttgtettttt actetgttga ttgtttettt tgeagtgeag 2940 aagetetttt gettaattaa ateatatttg teeatttttg tttttgttge aategetttt 3000 gaggacttag tcataagttc tttgccttgg ccaatgtcca gagaagtttt tcctagtttt 3060 cctttaggaa ttttatagtt tgaggtctta catttaagtc tttcatccat cttgagttga 3120 tttgtgtata tgaggggaa gggtccagtt tcattctctt gcatgtggct ggacagtttt 3180 cccagcatca tttattgaat agggtgtcct ttccccattg tttatttctg tcagctttct 3240 cgtagatcag ttggtagtag gtgtgtggtt ttatttctgg gttctctgtt ctgttccgta 3300 3360 gatctatatg tctatttttg tacttacacc gtgctgtttc agttaatata gccttgtagt atagtcaaag tcaggtaatg tgatatttcc agetttgttc tttttgttta ggattgettt 3420 ggctagtcag gctttgttgg tcccatatga attttagaat tgttttttct agttctgtta gaatgttaga atgacaaatg atgttggtaa tttgatagga attgcattga atctgtagat 3540 tgctttgggc agtatcatca ttttaactat attgattctt aacaatctat gagcatagaa 3600 tgtttttccc tttgtgtcat ctgtgatttc tttcatcagt gttttgtagt tctcctcgca 3660 gagacettic accretitgg titgatgtat tettaggeat titgtgtgtg tittgeatteg 3720 tgtggctatt gtaaatggga tcttgttctt tatttggctc taagcttgaa tgttactggt 3780 3840 gtatagaaat gctattgatt tttgtacatt gattttgtat cctggaactt tactgaattt 3900 ttttttttaa tcaggtttag gagtcttttg gagggacctt tagagttttc taggtatagg 3960 attattttct aggtatagga ttttctaggt aaaggattct tggcgaacag agataatttg 4020 actocotott thootattig gatgoottit attictotgt ottgoatgat tgotttotot 4080 aggacttcca gtactaagtt gaatacgagt ggtgagagca gacatccttt tcttgttcca 4140 cttcttaggg ggaatggttt cagctttcgc ccattcagta tgaagttggc tgtaggtctg 4200 tcacagataa ctcttcttat tttgaggtat gttcctttga tgcctagttt gttaaagatt tttatcatga aggggtgttg gattttatcc gatgcttttt ttacatctat taagatgatc 4260 tttttttttt tttttttt tttttgtttg agacggagtc ttgctctgtc accctggctg 4320 gagtgcagtg gcgcgatctc ggctcactgc aagctccgtc tcccaggttc acactattct 4380

jagraficiji Vizor

cctgcctcag cctctctgag tagctggaac tacaggcgcc caccaccaag cctggctata tttttgtatt tttttagtag agatggggtt tcaccgtggt ctcaatctcc tgacctcgtg 4500 atcogocogo otcagoctoo caaagtgota ggattacaag catgagocac cacacotggo 4560 eggtttttgt ttttaateet gtttatgtga tgaateaeat ttattgaaea etgaeatttt 4620 agaatacaat tootoagtto toacttettt tettettett tettgagatg aagtotoact 4680 ctgttgccta ggctggagtg cagtggcgcg atctcggctc actgcaacct ccacctcctg 4740 gtttcaagca gttctctgcc tcagcctccc gattagctgg gactacaggt gcgtgccacc 4800 atgcctggct aagttttgta tttttagtag agacaggatt tcaccatctt ggccaggctt 4860 gtcttgaact cttgccctca ggtgatccac ccaccttggc ctcccaaagt gctgggatta 4920 caggogtgag ctaccgogcc tggccagttc tcacttttta aaatagcttt actgaggtat 4980 aatttacatg ccataaaatt acttattgta tgtatacagt tcaatatata tatattttt 5040 ttttgagatg gagtttcact gttgtagccc atgctggagt gcagtggcac aatctcggct 5100 cactgcaacc tetgcetect gggttcaagt gatteteetg ceteageete eegagtaget 5160 5220 gggattacag gcatgtacca ccaggcctgg ctaattttgt atttttggta aagacagggt ttctccatgt tggtcaggct ggtctcaaac ttccgacctc aggtgatccg ccacctcagc 5280 cttccaaagt gctgggatta caggcgtgaa ccgccgcacc tggcctgtgt gtgtacagtt 5340 caataatttt tagtaaactt atagagttat atgattgtca cctctattca acatttctgt 5400 cacaccagaa agttctcatg tgcccatttg cattcatccg tcctcccatc agaggaaacc 5460 5520 attgatttgt ttactgtcta tagatttgct gtttctagac gtataagaat ggcattgtga aatatatagt cttttctttt tttttttttt agatggagcc ttgctctgtt gccaggctgg 5580 5640 aatacagtgg tgttatatcg gctcactgca acctctgcct cctgggttca agcaattccc ctgcctcagc ctcctgagta gctgggacta caggtgcaca ccaccacacc tggctaattt 5700 tttgtatttt agtagagacg gggtttcacc atgttggcca ggatggtctc aatctcctga 5760 ccttgtgatc cacccgcctc agcctcccaa agtgctggga ttacaggcat gagccaccat 5820 gcctggccct tttcattgtt tattaaccat ttgcatatct tttttagtaa aatgcctatt 5880 caattctttt ctttatttta aaattagatt gtgttcttat tgaattgtaa gaatttttag 5940 6000 tatattctag acacaagtcc tatatcaata taggattttc agatatttct ccctgtctgt 6060 ggcttatctt ttcattttct caatggtgtc atttcaggca caaaagtttt aaatgctgat taagtttaac ttaccaattt ttaaaatggg ttgtgctttt ggtgttgtaa ctaagaactt 6120 tattettaae teaaggttat gaagatttte tteaetggtt tettetagaa gttttaeagt

ર્જા નામાં કર્યા મુખ્યાના પ્રાથમિક

tttagctctt acatttagag ctacaatcca ttttagttaa tttttatgta tcaaatgagg tgaaaatcta aattcatttt cttgcatatg aatattcagt tgtccttaca atctcatata 6300 aagagtatcc ttcctcccat tgaattacct tggcaccttt atcaaaaatc agctgactgt 6360 gaatctaagt gttcatttct agtctcctga ttttgttcca tgatctccat cttcctccta 6420 tgacagtagc acactatett cattactgta getttatatt aagttttgaa gttagaagta 6480 tacactcccc aactttattt tetttttcag aaattgtttt gtetatttta tgteetttga 6540 atttcaatgt aagttttagg atcagattgt gaatttccaa aagggaaaaa aaccaaaagc 6600 ctgctgtggt tgtgatacca tgattatgtt gaatctgcag ataaattttg gtgagaatca 6660 ccatcttaat aatagtaagc cttccaatct atgactgtct ccctatttat ttggagcttt 6720 aacttcattc aacaatgttt gttaattttc tttttaaaaa tctttcttct tttcctcctt 6780 tecttteett ttetetttet ettetette ttteatecea etatgttgee caaactggee 6840 tctaacttct ggcctcaagc aatcctccca cctcagcctc cttaagtgtt gggattacag 6900 gcatgagcca ccgtgcccag ccttaatttt cagtttacaa actttgtgct actttgtcac 6960 atttattcct tagcatttta ttatttttat gctatcgtga atagtattgt tttctcagtt 7020 7080 tcatttttag aatagtcatt gctagtatat agaaatataa ttattttta tatatttatc ttatatgacc taagtacaat tatgacttct agttgctttt ttgaaatttt atgcttacaa 7140 aattatataa totgtgaaca agagattttt tttacttott cotttotagt taagatgoot 7200 ttcatttatt ttctcctcat tttgtttgtc ttctcctttt ttttttttt ttttttgaga 7260 cagagtetea etgtgteace aggetggagt gtggtggeac gateteaget eaetgeaaeg 7320 tecgeeteeg gggtteaage gatteteetg ceteageete ecaagtagee gagaetaeat 7380 gtgtgtgcta ccatagccag ctaatttttc tatttttagt ggagacaggg tttcgccatg 7440 ttggccagga tggtctcaat ctcttgacct cgtgatctgc ccgcctcggc ttcccaaagt 7500 gttgggacta caggcgtcat aagtttttga gaacacgtgc aatatttgcc acttcttctt 7560 cttttctgtg tctccctctt ttgaattcaa ccccttaaaa aggtaaaaac catttttagc · 7680 tggcaggcca tacagaaaca ggtttcaggc tggatttggc ctgtcaggtg agtttgccaa 7800 ctcctgcaat agaaaatgta atgcataggg ctagacacag tggcttatgc ctgtaatccc ageactttgg gaggettagg etgaeetgag gteaggagtt caagaeeage etggeaaaca 7860 cggtaaaact ctgtctctac taaaaataca aaaattagct gggcgtagtc ttggacgcct 7920

gtaatcccag ctactcggga ggctaaggca ggagaatcgc ttgaaccctg gaggcggagg ttgcagtgag ctgagatcgc accactgcac tccagcttgg gtgaaagaaa gactccgttt 8040 aaaaaaaaa acaaaaaac aaaagaaagt gtaatgcatg aagtgaaatg aaaaatagat 8100 gctgggaagg atgtctaact gggagatagc ttgtgatgta aatatgtaaa tatattatga 8160 atgaccagtg ggcaaggcaa aattgcctac acagccctac ctatggcccc tctgaaaatg 8220 ttetttette ageagaateg aageeagaaa tteaaettag teeeteetge eetetgattt tetecagtea geaagetete ageeaacatg tgtggetgag teatetetet cagetgtttt 8340 caagtttatg ggcaggaaat cctctccacc tgggaaaaca ctatccagaa gatcagaaac 8400 aacagcagga tccattctgc tttagtggca aagcagaatg gattcaagag ggagaagact 8460 ccagactcct gtttgggaga gtaagcaaaa atggcacttc aaaggcactt tccagcccac 8520 ctgaagaaca acagccagca cagtccaagg aagacaacac agtggtggat atagggtcca 8580 gccctgaacg gagggcagat ctagaggaaa cagacaaagt attgcatggt ttagaagtct 8640 caggatttgg agaaatcaaa tatgaagagt ttgggccagg ctttatcaag gagtcaaacc 8700 teettageet eeagaagaca caaactgggg agacacetta catgtacaet gagtggggag 8760 acagetttgg cagtatgtca gteeteatea aaaacecaag gacacaetet gggggaaage 8820 cttatgtgtg cagggaatgt gggcgaggct ttacgtggaa gtcaaacctg atcacacatc 0888 8940 agaggacaca ctcaggggag aaaccttatg tgtgcaagga ttgtggacga ggctttactt 9000 ggaagtegaa cetetttaca cateagegga cacaeteagg geteaageet tatgtgtgea 9060 aggaatgtgg gcagagcttt agcctgaagt caaacctcat tacccaccag agggcgcaca 9120 ctggggagaa gccttatgtt tgcagggaat gtgggcgtgg ctttcgccag cattcacacc 9180 tggtcagaca caagaggaca cattcaggag agaagcctta catttgcagg gagtgtgagc 9240 aaggetttag ecagaagtea eaceteatea gaeaettaag gaeaeaeae ggagagaage cttatgtatg cacagaatgt gggcgtcact ttagctggaa atcaaacctc aaaacacacc 9300 9360 agaggacaca ctcaggggtt aaaccttatg tctgcctgga gtgcgggcag tgctttagcc 9420 tgaagtcaaa ccttaacaaa caccagaggt cacacacggg ggagaagcca tttgtatgta cggagtgtgg gcgaggcttt acccggaaat caaccctgag cacgcaccag aggacacact 9480 9540 caggggagaa gccatttgta tgtgctgagt gtggacgagg ctttaatgat aagtccaccc 9600 tcatttcaca ccagaggaca cattcagggg aaaagccttt tatgtgcagg gagtgtggca gaaggtttcg gcagaagcct aacctgttta ggcacaagag ggcacactca ggtgcctttg 9660 tgtgcaggga gtgtgggcaa ggcttttgtg ctaagttaac tctcattaaa caccagagag 9720

cacacgcagg ggggaagcct catgtgtgca gggagtgtgg gcaaggcttt agccggcagt cacacctcat tagacaccag aggacacatt caggagagaa gccttatatt tgcagaaagt gtggacgggg ctttagtcgg aagtccaacc ttatcagaca tcagaggaca cactcaggat 9900 agaaacttta tgtgtatagg gaatgtggta cagcctttag ccaggagtca tacttcatca 9960 gacaccagag gacacacaca gtgctgtggc tttttcagcc attgctagat accaaagtgg 10020 agacattetg tgtgtgatta tgcatgagae tgtaetggta agaettgtat etecatecae 10080 ctgaaggaga attgctggct cattttcagg agecctgccc ttcctcactg tggatggtgg 10140 gttgtggaaa cccggtcagg taatgatagt ggcaggaggc agtcaaatgc ccaggcagat 10200 aggggtgggt acctggtgaa acccaacctt aaagctgaag acagtcccgg ctaaatcctc 10260 atactgaatt gagaacctgt cttcccattt ggtgtgcttt cctccgattg atcccaaccc 10320 ttcacctatt ttacgtatac ctgccctttc ctaattggtt tttacactgc tgtgcccacc 10380 ttttgagtgg tgcctttgca tacttacaaa tcagtcaacg tgtattcccc tattctgagc 10440 ccataaaaga cccagactca gctgcagtga ggagagaaat caccctgctg tgggggttgg 10500 ggaccactcc ctgcatcccc tctccactga gagctgttct tttgctcaat aaaattcttt 10560 totaccoatc ctcaccottc aattgtcagt gtatcotcat totttttgga ctcaggacaa 10620 gcgctcagaa ccactaaaca tgggtataag ctataataca ggcaggccaa gagggcaggg 10680 cacctccagc agcaggccca gggctaagtg agatccaggc agagggctgt cgctggctgt 10740 ggaggtcctc agttggcaat gtggctgaga aaattcctgt gtcagtaact tgacggagaa 10800 agtactttta aatgggttga aattaggaaa tgaatactat tccagtgtca ttttacaggt 10860 acactggaac attectteca etgtaceetg gatgttacag aaactattge gggaatgaag 10920 gaggaccaga gagaccatgg ggtgagacag gaggatttat ttatttattt ttttgagaca 10980 gagtctcgct ctgtcaccca ggctggagtg cagtggcgcg atctcggctc actgcaggct 11040 ccgccccca ggttcacgcc attettetge ctcagectee cgaggagetg ggactacaag 11100 tgcctgccac ctcacccggc taattttttg tatttttagt agagatgggg tttcactgtg 11160 11173 ttagccagga tgg

<sup>&</sup>lt;210> 11

<sup>&</sup>lt;211> 246

<sup>&</sup>lt;212> DNA

<sup>&</sup>lt;213> Homo sapiens

ttgcctaggc	tggagtgcag	tagegegate	tcggctcact	60
tcaagcggtt	ctctgcctcg	gcctcccgat	tagctgggac	120
ttcaacttag	tccctcctgc	cctctgattt	tctccagtca	180
tgtggctgag	tcatctctct	cagctgtttt	caagtttatg	240
				246
	•		•	
ence				
nucleotide				
				20
				•
ence				
nucleotide				
				20
ence			•	
ucleotide				
				20
			•	
766				
nce				
ucleotide				
				20
	tcaagcggtt	tcaageggtt etetgeeteg ttcaacttag teecteeteg tgtggetgag teatetetet  ence nucleotide  ence nucleotide	tcaagcggtt ctctgctcg gcctcccgat ttcaacttag tccctcctgc cctctgattt gtgtggctgag tcatctctc cagctgtttt  ence nucleotide  ence nucleotide	ence nucleotide ence nucleotide ence nucleotide

Planelle I

<210> 16 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 16 tcctgagtgc tcttcctgga	20
<210> 17 <211> 20 <212> DNA	
<213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 17 agaccagatg gttataagtc	20
<210> 18 <211> 20 <212> DNA <213> Artificial Sequence	
<220>	
<400> 18 cagtggacat tttctctcct	. 20
<210> 19 <211> 20 <212> DNA	
<213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 19 tctggacaga ggtccagtgg	20
<210> 20 <211> 20	
<212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 20 gggactaagt tgaatttctg	20

<210	> 21	
	> 20	
	> DNA	
	> Artificial Sequence	
	·	
<220	· >	
<223	> Antisense Oligonucleotide	
	·	
<400	> 21	
cttg	ctgact ggagaaaatc	2
	·	
<210		
<211:		
	> DNA	
<213:	Artificial Sequence	
200		
<220		
<223	> Antisense Oligonucleotide	
<400>	. 11	
	gctgag agcttgctga	20
grigg	getgag agettgetga	20
<210>	23	
<211>		
<212>		
	Artificial Sequence	
1227	THE CALLOSINE DOGUCTION	
<220>		
<223>	Antisense Oligonucleotide	
<400>	23	
gccac	acatg ttggctgaga	20
	·	
<210>	24	
<211>		
<212>		
<213>	Artificial Sequence	
<220>		
<223>	Antisense Oligonucleotide	
400		
<400>		2.0
gagaga	agatg actcagccac	20
.210:	25	
<210>		
<211>		
<212>		
<213>	Artificial Sequence	
-220.		
<220>	Antisense Oligonucleotide	
<b>\443</b> >	wittenes offdouncteoffde	
<400>	25	
~ せいひろ		

atttcctgcc cataaacttg -	20
· · · · · · · · · · · · · · · · · · ·	
<210> 26	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Antisense Oligonucleotide	
<400> 26	2.0
cagaatggát cetgetgttg	20
•	
<210> 27	
<211> 20	
<212> DNA <213> Artificial Sequence	
(213) Attititian Sequence	
<220>	
<223> Antisense Oligonucleotide	
<400> 27	
atccattctg ctttgccact	20
.210. 20	
<210> 28 <211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Antisense Oligonucleotide	
<400> 28	
ggagtetgga gtetteteee	20
<210> 29	
<211> 20	`
<212> DNA	
<213> Artificial Sequence .	
<220>	
<223> Antisense Oligonucleotide	
<400> 29	2.0
ctcccaaaca ggagtctgga	20
<210> 30	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Antisense Oligonucleotide	

<400> 30 cctttgaagt gccatttttg	20
<210> 31 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 31 aagtgccttt gaagtgccat	20
<210> 32 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 32 gactgtgctg gctgttgttc	20
<210> 33 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 33 ttgtcttcct tggactgtgc	20
<210> 34 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 34 ccctatatcc accactgtgt	20
<210> 35 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	

<400> 35 agggctggac cctatatcca	•	20
<210 > 36 <211 > 20 <212 > DNA <213 > Artificial Sequence		
<220> <223> Antisense Oligonucleotide	·	
<400> 36		20
<210> 37 <211> 20 <212> DNA <213> Artificial Sequence		
<220> <223> Antisense Oligonucleotide		
<400> 37 ccttgataaa gcctggccca		20
<210> 38 <211> 20 <212> DNA <213> Artificial Sequence		
<220> <223> Antisense Oligonucleotide		
<400> 38 ggaggtttga ctccttgata		20
<210> 39 <211> 20 <212> DNA <213> Artificial Sequence		•
<220> <223> Antisense Oligonucleotide		
<400> 39 ctccccagtt tgtgtcttct		20
<210> 40 <211> 20 <212> DNA <213> Artificial Sequence		
1220		

<223> Antisense Oligonucleotide	
<400> 40 gtccttgggt ttttgatgag	2
<210> 41 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 41 tttgacttcc acgtaaagcc	20
<210> 42 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 42 cgacttccaa gtaaagcctc	20
<210> 43 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 43 tgtccttaag tgtctgatga	20
<210> 44 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 44 attctgtgca tacataaggc	20
<210> 45 <211> 20 <212> DNA <213> Artificial Sequence	

```
<223> Antisense Oligonucleotide
 <400> 45
 ttatcattaa agcctcgtcc
                                                                        20
 <210> 46
 <211> 20
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Antisense Oligonucleotide
 <400> 46
 ggacttatca ttaaagcctc
                                                                        20
<210> 47
 <211> 20
 <212> DNA
<213> Artificial Sequence
<220>
<223> Antisense Oligonucleotide
<400> 47
                                                                        20
gtgtgaaatg agggtggact
<210> 48
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Antisense Oligonucleotide
<400> 48
                                                                       20
gccgaaacct tctgccacac
<210> 49
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Antisense Oligonucleotide
<400> 49
                                                                       20
aacaggttag gcttctgccg
<210> 50
<211> 20
<212> DNA
<213> Artificial Sequence
```

<220> <223> Antisense Oligonucleotide	
<400> 50 gtgccctctt gtgcctaaac	20
<210> 51 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 51 ctccctgcac acaaaggcac	20
<210> 52 <211> 20 <212> DNA <213> Artificial Seguence	
<213> Artificial Sequence  <220> <223> Antisense Oligonucleotide	
<400> 52 ttaatgagag ttaacttagc	20
<210> 53 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 53 ggtgtttaat gagagttaac	20
<210> 54 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 54 actttctgca aatataaggc	20
<210> 55 <211> 20 <212> DNA	

<213> Artificial Sequence	•
<220>	
<223> Antisense Oligonucleotide	•
<400> 55	
·	2
aaagtttcta tcctgagtgt	2
<210> 56	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Antisense Oligonucleotide	
J	
<400> 56 .	
ctgtaccaca ttccctatac	20
<210> 57	•
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Antisense Oligonucleotide	
400 55	
<400> 57	2.0
tatgactcct ggctaaaggc	20
<210> 58	•
<211'> 20	
<212> DNA	
<213> Artificial Sequence	
•	
<220>	
<223> Antisense Oligonucleotide	
	•
<400> 58	
gcaatggctg aaaaagccac	20
-210, 50	
<210> 59	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Antisense Oligonucleotide	
· <400> 59	
ggtatctagc aatggctgaa	. 20
33	20
<210> 60	
<211> 20	

<212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 60 tcacacacag aatgtctcca	20
<210> 61 <211> 20	
<212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 61 . tcatgcataa tcacacag	20
<210> 62 <211> 20	
<212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 62 gtcttaccag tacagtctca	20
<210> 63 <211> 20	
<212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 63 agcaattctc cttcaggtgg	20
<210> 64 <211> 20	
<212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 64 aaaatgagcc agcaattctc	20

<210> 65

	<211> 20	
	<212> DNA	
	<213> Artificial Sequence	
	(21) Attiticial ocquence	
	<220>	
	<223> Antisense Oligonucleotide	
	<400> 65	
	aacccaccat ccacagtgag	20
	212 66	
	<210> 66	
٠	<211> 20	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Antisense Oligonucleotide	
	(22) And Sense Original College	
	100 55	
	<400> 66	
	ggtttccaca acccaccatc	20
	<210> 67	
	<211> 20	
	<212> DNA .	
	<213> Artificial Sequence	
	<220>	
	<223> Antisense Oligonuclėotide	
	<400> 67	
	ctgggcattt gactgcctcc	20
	355	
	210. 60	
	<210> 68	
	<211> 20	
	<212> DNA	
	<213> Artificial Sequence	
	<220>	
	<223> Antisense Oligonucleotide	
	1207 1210100100 01230110010011	
	400- 69	
	<400> 68	20
	ctatctgcct gggcatttga	20
	<210> 69	
	<211> 20	
	<212> DNA	
	<213> Artificial Sequence	
	21) ALCITICIAL DEGLEROE	
	<220>	
	<223> Antisense Oligonucleotide	
	<400> 69	
	caggtaccca cccctatctg	20

_	
<210> 70	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Antisense Oligonucleotide	
<400> 70	
	20
aaggttgggt ttcaccaggt	20
<210> 71	
<211> 20	
- <212> DNA	
<213> Artificial Sequence	
<220> .	
<223> Antisense Oligonucleotide	
<400> 71	20
tttagccggg actgtcttca	20
<210> 72	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
· ·	
<220>	
<223> Antisense Oligonucleotide	
<400> 72	
aattcagtat gaggatttag	20
212 72	
<210> 73 <211> 20	
<211> 20 <212> DNA	
<213> Artificial Sequence	
Value and the second of the se	
<220>	
<223> Antisense Oligonucleotide	
-	
<400> 73	
accaaatggg aagacaggtt	20
<210> 74	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Antisense Oligonucleotide	
and a second contraction of the second of th	
<400> 74	
aaaggcacca ctcaaaaggt	20

<210	. 75	-	•	
<211:	20			
<212:				
<213>	Artificial Sequence			
<220>				
	Antisense Oligonucleotide			
1220	12.0120.020 01250.001001			
<400>	75			
atttg	taagt atgcaaaggc			20
<210>	76			
<211>			•	
<212>				
	Artificial Sequence			
<220>				
<223>	Antisense Oligonucleotide			
<400>	76			
	tttat gggctcagaa			20
35000	2550004344			
<210>	77			
<211>				
<212>				
<213>	Artificial Sequence			
<220>				
	Antisense Oligonucleotide			
	<b>3</b>			
<400>	77			
cactgo	eaget gagtetgggt			20
<210>	78			
<211>				
<212>				
<213>	Artificial Sequence			
<220>				
<223>	Antisense Oligonucleotide			
<400>	78			
	ctcc tcactgcagc			20
210>				
211>				
212>				
:∠⊥3>	Artificial Sequence			
220>				
	Antisense Oligonucleotide			
	_			
400>	79			
- •				20

```
<210> 80
 <211> 20
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Antisense Oligonucleotide
 <400> 80
                                                                        20
 aacagctctc agtggagagg
<210> 81
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Antisense Oligonucleotide
<400> 81
                                                                       20
agaaaagaat tttattgagc
<210> 82
<211> 20
<212> DNA
<213> Artificial Sequence
<220>
<223> Antisense Oligonucleotide
<400> 82
                                                                       20
actatgtaaa ctatttgggt
<210> 83
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Antisense Oligonucleotide
<400> 83
                                                                       20
gagcttctgc actgcaaaag
<210> 84
<211> 20
<212> DNA
<213> Artificial Sequence
<223> Antisense Oligonucleotide
<400> 84
```

agettgeagt gageegagat	21
<210> 85 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 85 atgcctgtaa tcccaacact	20
<pre> &lt;210&gt; 86 &lt;211&gt; 20 &lt;212&gt; DNA &lt;213&gt; Artificial Sequence</pre>	
<220> <223> Antisense Oligonucleotide	
<400> 86 ttcgattctg ctgaagaaag	20
<210> 87 <211> 20 <212> DNA <213> Artificial Sequence .	
<220> <223> Antisense Oligonucleotide	·
<400> 87 gcctaggcaa cagagtgaga	. 20
<210>~88 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	
<400> 88 ttctgtagtc ccagctaatc .	20
<210> 89 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> Antisense Oligonucleotide	

<400> 89
aatttctggc\_ttcgattctg